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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,925	01/03/2002	Eyal Shekel	U 013818-8	7594
7590	12/23/2003			
			EXAMINER	
			STOCK JR, GORDON J	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AJC

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/037,925	SHEKEL ET AL.
	Examiner Gordon J Stock	Art Unit 2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7, 11-13, 15-54 is/are rejected.
- 7) Claim(s) 8-10 and 14 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 January 2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings and Specification*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 4 and 27 of Fig. 1; 181 of Fig. 18. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 28 of Fig. 1; 115 of Fig. 12. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “68” has been used to designate both a computer display and “THETA Z” of Fig. 4a. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. Fig. 20 is objected to for the following informalities: 202 and 218 do not have arrows designating their particular step in the flow diagram.
5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: **claims 7, 12, 21, 26, 35, 40, 48, and 52** refer to the function as a full width

half maximum squared, yet the specification discloses that a minimum value of the sum of the full width half maximum is obtained.

*Claim Objections*

6. **Claim 8** is objected to for the following: “said function of said second light signal” of line 11 lacks antecedent basis. Correction is required.

*Claim Rejections - 35 USC § 112 and - 35 USC § 101*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. **Claims 15-54** are rejected under 35 U.S.C. 112 second paragraph as being indefinite, for claims 29 and 42 claim both an apparatus and the method steps of “receiving a plurality of signals ... third motor” and “computer program instructions being stored in said computer, which instructions when read by said computer, cause said computer to perform ...” And **claim 15** claims both a computer software product with method steps. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *In Ex parte Lyell, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990)*. **Claims 16-28, 30-41, and 43-54** are rejected as well for their dependence on **claims 15, 29, and 42**.

In addition, **claims 16-19, 30-33, 43-46** are rejected to for the following: referring to a method claim for dependency rather than a computer product or apparatus. Therefore, it is unclear as to what these claims depend.

**Claims 15-54** are rejected under 35 U.S.C. 101 based on the theory that **claims 15, 29 and 42** are directed to neither a “process” nor a “machine,” but rather embraces or overlaps two different statutory classes of invention set forth in U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551. **Claims 16-28, 30-41 and 43-54** are rejected as well for their dependence on **claims 15, 29, and 42**.

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1-5, and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Song et al. (5,926,594)**.

As to **claims 1-5 and 11**, Song in a system for alignment discloses the following:

holding a first element in opposition to a second optical element, said second optical element including a plurality of receivers (Fig. 1, 20, 12, 28); detecting a plurality of light signals that pass from said first optical element, said light signals including a first light signal that impinges on said first marginal receiver, and a second light signal that impinges on said second marginal receiver (Fig. 1, 38, 40); a first phase of operation of rotation about an axis and displacing along said axis; recording a signal strength of one of said light signals; displacing said first optical element along another axis; with the second phase comprising displacing said first optical element on an interval of said y-axis; determining a function by graphical representation; displacing said first optical element by an increment and displacing the element on the interval

because of hysteresis and thereby displacing the element responsive to difference between average of both hysteresses dependent curves (Figs. 15, 20, 21, 23, 25; cols. 13, 15-17). As for the axes, Song is silent concerning the elements specific axes, but the whole system has three axes defined (col. 10, lines 23-25). Therefore, it would be obvious to one skilled in the art that the elements have three axes each because the whole system has three axes defined. As for parallel and orthogonal axes, the x-axis of one element would be parallel to the x-axis of the other element and this goes for the y and z-axes respectively. Subsequently, different axes designations are orthogonal to each other (x and y, etc.)

11. **Claims 6-7 and 12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Song et al. (5,926,594)** in view of **Caponi et al. (5,852,700)**.

As to **claims 6-7, 12-13** Song discloses everything as above (see **claims 1 and 11** above). However, he is silent concerning full width half maximum, its square, and using the minimum value. However, he does measures power (Figs. 20, 21, 25). Caponi in an optical communication system discloses that the optimal performance of a communication system is the minimum of a full width half maximum of the power (col. 6, lines 20-25). Therefore, it would be obvious to one skilled in the art to derive a full width half maximum, square it, and use the minimum value for this is the optimal signal level for a communication system.

12. **Claims 15-54** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Song et al. (5,926,594)** in view of **Lapham (6,442,451)**.

As to **claims 15-36, 38-46, 48-54**, Song discloses in a system for aligning optical elements a computer, a holder (chuck) for an object (Fig. 2: 28, 30, 32); a first optical element opposing a second optical element; a third optical element (Fig. 1) including a plurality of

receivers including a first marginal receiver and second marginal receiver; a plurality of detectors whereas each detects light from separate receivers; an alignment robot that moves in respects to x, y, z, and theta (Fig. 1; 40). He also discloses that there is software for the control of the system (col. 16, lines 10-45; col. 17, lines 45-65; col. 18, lines 1-55; col. 19, lines 50-65; col. 20, lines 1-15). As for actuators and motors, Song is silent; however, he discloses a robot. Lapham in a robot control system teaches that robots comprise actuators comprising motors (col. 4, lines 25-35). Therefore, it would be obvious to one skilled in the art at the time the invention was made that there are at least four actuators and four motors, for a robot comprises actuators comprising motors and the robot moves in x, y, z, and theta directions.

As for the axes, Song is silent concerning the elements specific axes, but the whole system has three axes defined (col. 10, lines 23-25). Therefore, it would be obvious to one skilled in the art that the elements have three axes each because the whole system has three axes defined. As for parallel and orthogonal axes, the x axis of one element would be parallel to the x-axis of the other element and this goes for the y and z axes respectively. Subsequently, different axes designations are orthogonal to each other (x and y, etc.)

As for **claims 15-28**, due to the rejection of these claims under 35 U.S.C. 101 and 112 second paragraph (see above) and from how claim 15 reads as referring to a computer software product that comprises “a computer-readable medium in which program instructions are stored.” The limitations treated for the merits are “a computer software product, comprising a computer-readable medium in which program instructions are stored.” Consequently, because of the way **claims 15-28** are presently presented, the rest of **claim 15** and **claims 16-28** do not further limit the scope of the computer software product.

As for **claims 34-36, 38-41, 48-54**, due to the rejection of these claims under 35 U.S.C. 101 and 112 second paragraph (see above), the apparatus limitations were treated on their merits; thereby limitations referring to method limitations were not treated. Thereby, these claims were treated by the Examiner as not further limiting the base claim.

As for **claim 37**, Song in view of Lapham discloses everything as above (see **claim 36**). However, Song does not disclose the particular angle of rotation. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the particular angle of rotation be equal to the inverse sin of z-axis displacement divided by a distance, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

As for **claim 47**, Song discloses a vacuum line with the holder (col. 12).

#### *Allowable Subject Matter*

13. **Claims 8-10 and 14** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to **claim 8**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of alignment “calculating a difference between said second point and said first point,” in combination with the rest of the limitations of **claims 8-10**.

As to **claim 14**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an alignment method “responsive to a difference between said first magnitude and said second magnitude, rotating said first optical element about said z-axis by a second increment,” in combination with the rest of the limitations of **claim 14**.

*Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 5,177,348 to Laor

U.S. Patent 6,175,675 to Lee et al.

U.S. Patent 6,480,651 to Rabinski

U.S. Patent 6,556,285 to Dickson

U.S. Patent 6,587,611 to Hunt

U.S. Patent 6,590,658 to Case et al.

U.S. Patent 6,654,523 to Cole

U.S. Patent Application Publication 2003/0053054 to Li et al.

U.S. Patent Application Publication 2003/0063277 to Kennedy et al.

*Fax/Telephone Numbers*

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306*

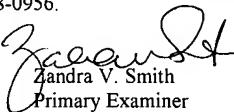
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787.  
The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gs  
December 8, 2003

  
Sandra V. Smith  
Primary Examiner  
Art Unit 2877